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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,778

09/10/2003

Edward P. Barth

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10/15/2004

International Business Machines Corporation
2070 Route 52
Hopewell Junction, NY 12533

EXAMINER

NOVACEK, CHRISTY L

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,778

Applicant(s)

BARTH ET AL.

Examiner

Christy L. Novacek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

- A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004 and 04 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-24, 27 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-24, 27 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the amendments filed June 29, 2004 and August 4, 2004.

Oath/Declaration

The declaration filed on June 29, 2004 is accepted.

Response to Amendment

The replacement drawings were received on June 29, 2004. These drawings are accepted. The objections to the drawings are withdrawn.

The amendment to the specification is sufficient to overcome the objections to the specification. Therefore, these objections are withdrawn.

The amendments of claims 20 and 23 are sufficient to overcome the objections to claims 20 and 23. Therefore, these objections are withdrawn.

The amendments of claims 20 and 29 are sufficient to overcome the rejections of claims 20-24, 27 and 29 under 35 USC 112, second paragraph. Therefore, these rejections are withdrawn.

The amendment to the specification which added a claim of priority to application 08/744846 has been entered and made of record. However, this priority claim does not overcome the previously made rejections of claims 20-24, 27 and 29 under 35 U.S.C. 102 because in order to be accorded the effective filing date of the parent application, each limitation of the claims in question must be adequately supported by the parent application. To this end, MPEP Section 201.11 states, "Any claim in a continuation-in-part application which is directed

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solely to subject matter adequately disclosed under 35 U.S.C. 112 in the parent nonprovisional application is entitled to the benefit of the filing date of the parent nonprovisional application. However, if a claim in a continuation-in-part application recites a feature which was not disclosed or adequately supported by a proper disclosure under 35 U.S.C. 112 in the parent nonprovisional application, but which was first introduced or adequately supported in the continuation-in-part application such a claim is entitled only to the filing date of the continuation-in-part application; *In re Chu*, 66 F.3d 292, 36 USPQ2d 1089 (Fed. Cir. 1995); *Transco Products, Inc. v. Performance Contracting Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994); *In re Von Lagenhoven*, 458 F.2d 132, 136, 173 USPQ 426, 429 (CCPA 1972); and *Chromalloy American Corp. v. Alloy Surfaces Co., Inc.*, 339 F. Supp. 859, 874, 173 USPQ 295, 306 (D. Del. 1972).” In the instant case, independent claim 20 recites the limitation of forming “the metal structure extending to a substantially planar substrate”. This particular limitation of claim 20 is not adequately disclosed under 35 U.S.C. 112 in the parent nonprovisional application. Therefore, claims 20-24, 27 and 29 are entitled only to the filing date of the continuation-in-part application (December 20, 1999). The rejections of claims 20-24, 27 and 29 as being anticipated by Kudo (US 6,420,261), Anand et al. (US 6,307,265) and Venkatesan et al. (US 6,326,301) as stated in the office action mailed March 29, 2004 are maintained.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 20-24, 27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Kudo (US 6,420,261, previously cited).

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Regarding claim 20, Kudo discloses a substantially planar substrate (24/23/22/21), having underlying metal wires (29) therein, a substantially fluorine free insulating layer (silicon dioxide) (31) on the substrate, having a height, and a fluorine containing insulating layer (32) on the fluorine free insulating layer, also having a height (Fig. 3F; col. 7, ln. 5-16; col. 5, ln. 61-col. 6, ln. 13). A metal structure (39/40/41/42) of at least the combined height of the fluorine free layer (31) and the fluorine-containing layer (32), is formed in layers 31 and 32 and extends to, and is in contact with, the substrate (24/23/22/21) (Fig. 3O-3P; col. 8, ln. 26-41).

Regarding claim 21, Kudo discloses a capping layer (30) on the substrate (24/23/22/21) underlying the substantially fluorine free insulating layer (31) (Fig. 3Fcol. 7, ln. 8-11).

Regarding claim 22, Kudo discloses that the fluorine containing insulating layer (32) is made of fluorinated organic polymer (col. 6, ln. 1-13).

Regarding claim 23, Kudo discloses that the substantially fluorine free insulating layer (31) is made of undoped silicon glass (silicon dioxide) (col. 7, ln. 9-10).

Regarding claim 24, Kudo discloses that the capping layer (30) is made of silicon nitride (col. 7, ln. 8-9).

Regarding claim 27, Kudo discloses that the metal structure extends through the capping layer and has a height greater than the height of the substantially fluorine free insulating layer plus the height of the fluorine containing insulating layer (Fig. 3O).

Regarding claim 29, Kudo discloses that the metal structure is in contact with the underlying metal wires through the capping layer (Fig. 3O).

Claims 20-24, 27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Anand et al. (US 6,307,265, previously cited).

Regarding claim 20, Anand discloses a substantially planar substrate (21/22/23/24/25/26/27/28/39), having underlying metal wires (28a/28b) therein, a substantially fluorine free insulating layer (30) on the substrate, having a height, and a fluorine containing insulating layer (32) on the fluorine free insulating layer, also having a height (Fig. 8-19; col. 19, ln. 66 – col. 21, ln. 20). A metal structure (33a/33b/35a/35b) of at least the combined height of the fluorine free layer (30) and the fluorine-containing layer (32), is formed in layers 30 and 32 and extends to the substrate (Fig. 22; col. 21, ln. 14-20).

Regarding claim 21, Anand discloses forming a capping layer (29) on the substrate prior to the formation of the substantially fluorine free insulating layer (Fig. 10).

Regarding claim 22, Anand discloses that the fluorine containing insulating layer is made of fluorinated silicon oxide (fluorinated TEOS) (col. 21, ln. 11-13).

Regarding claim 23, Anand discloses that the substantially fluorine free insulating layer is made of undoped silicon glass (silicon dioxide) (col. 20, ln. 47-49).

Regarding claim 24, Anand discloses that the capping layer is made of silicon nitride (col. 19, ln. 66-67).

Regarding claim 27, Anand discloses that the metal structure (33a/33b/35a/35b) extends through the capping layer such that the height of the structure is greater than the height of the fluorine free and fluorine containing layers.

Regarding claim 29, Anand discloses that the metal structure is in contact with the underlying metal wires through the capping layer (Fig. 21).

Claims 20-24, 27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Venkatesan et al. (US 6,326,301, previously cited).

Regarding claim 20, Venkatesan discloses a substantially planar substrate (12/14a/14b), having underlying metal wires (14a/14b) therein, a substantially fluorine free insulating layer (18) on the substrate, having a height, and a fluorine containing insulating layer (22) on the fluorine free insulating layer, also having a height (Fig. 1 and 2; col. 5, ln. 55 – col. 8, ln. 35). A metal structure (32/34/36) of at least the combined height of the fluorine free layer and the fluorine-containing layer, is formed in layers 18 and 22 and extends to the substrate (Fig. 4; col. 5, ln. 55 – col. 8, ln. 35).

Regarding claim 21, Venkatesan discloses forming a capping layer (16) on the substrate prior to the formation of the substantially fluorine free insulating layer (Fig. 1 and 2).

Regarding claim 22, Venkatesan discloses that the fluorine containing insulating layer is made of fluorinated silicon oxide (fluorine-doped TEOS) (col. 5, ln. 55-62).

Regarding claim 23, Venkatesan discloses that the substantially fluorine free insulating layer is made of undoped TEOS (silicon glass) (col. 5, ln. 55-62).

Regarding claim 24, Venkatesan discloses that the capping layer is made of silicon nitride (col. 6, ln. 30-32).

Regarding claim 27, Venkatesan discloses that the metal structure extends through the capping layer such that the height of the structure is greater than the heights of the fluorine free and fluorine containing insulating layers (Fig. 4 and 9).

Regarding claim 29, Venkatesan discloses that the metal structure is in contact with the underlying metal wires through the capping layer (Fig. 4 and 9).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

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policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christy L. Novacek whose telephone number is (571) 272-1839. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLN
October 6, 2004


AMIR ZARABIAN
SUPERVISORY PATENT EXAMINER
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